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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MCDONALD, RODNEY GLENN	
ART UNIT	**PAPER NUMBER**
1753	

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/537,095	BARTOLOMEI ET AL.	
	Examiner	Art Unit	
	Rodney G. McDonald	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-61* is/are pending in the application.

4a) Of the above claim(s) *17-29,40-44 and 49-61* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16,30-39 and 45-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/2000, 9/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, Claims 1-16, 30-39 and 45-49 in the reply filed on 1-28-2005 is acknowledged. The traversal is on the ground(s) that the product requires that the ends be unsealed. This is not found persuasive because the process can be used to form other and materially different products including lamps with coatings on the interior surface of the lamps.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 11, 30, 31, 32, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Parham et al. (U.S. Pat. 4,949,005).

Regarding claim 1, Parham teach forming a lamp according to their invention. (Column 4 lines 26-27) Parham teach forming a thin film optical interference filter 20 on the outer surface of the lamp. The coating 20 consists of alternating layers of tantala and silica. The layers are formed by CVD or LPCVD. (Column 3 lines 49-51; Column 4 lines 49-53) The films are produced on quartz substrates including quartz tubing that produces the lamps. The films were formed prior to lamp fabrication on the tubing.

(Column 3 lines 30-34) To form the lamp the lamp is hermetically sealed to finish the production of the lamp with a filament. (Column 4 lines 36-51)

Regarding claim 8, the lamp substrate is a vitreous light transmissive material such as quartz. (Column 4 lines 33-36)

Regarding claim 11, Parham as discussed above teach that prior to lamp formation a quartz tube is coated on the outer surface of the lamp. The quartz tube is finished into a lamp by positioning a filament and electrical leads. The electrically leads are mechanically attached through welding and the lamp is hermetically sealed. (See Parham et al. discussed above; Column 4 lines 3-51)

Regarding claim 30, Parham et al. as discussed above teach that prior to lamp formation a quartz tube is coated on the outer surface of the lamp. (See Parham et al. discussed above) After forming the coating the lamp is thermally treated by heating to a critical temperature range of within about 550-675 degrees C. (Column 6 lines 13-16)

Regarding claim 31, the temperature range of 550-675 degrees is greater than 400 degrees C. (Column 6 line 17)

Regarding claim 32, the temperature of 675 degrees C is greater than 600 degrees C. (Column 6 line 17) The temperature of 800 degrees C is greater than 600 degrees C. (Column 6 line 51)

Regarding claim 34, Parham et al. teach that after film formation heating the substrates up to a temperature of 550-675 degrees C for 1-5 hours followed by heating to 800 degrees C for 0.1-5 hours. (Parham et al. Column 6 lines 46-49)

Regarding claim 35, the raising of the baking temperature is repeated at least once. (Parham et al. Column 6 lines 46-49; Column 6 lines 48-55)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. (U.S. Pat. 4,494,005) in view of Martin, Jr. et al. (U.S. Pat. 4,663,557).

Parham et al. is discussed above and all is as applies above. (See Parham et al. discussed above)

The differences between Parham et al. and the present claims is that baking the envelope in an oxygen containing atmosphere is not discussed (Claim 2), the baking

temperature being greater than 400 degrees C is not discussed (Claim 3), the baking at a first temperature and then at a second temperature higher than the first temperature is not discussed (Claim 4), the temperature being greater than 1200 degrees C is not discussed (Claim 33).

Regarding claim 2, Parham et al. teach that the films are deposited on the quartz tubing prior to lamp fabrication. (Parham et al. Column 3 lines 30-34) After the films are deposited the quartz tubing substrate can be heat treated. (Parham et al. Column 2 lines 50-51) Martin, Jr. et al. suggest a forming a multilayer stack of silicon dioxide and tantalum pentoxide on a lamp and then baking the coated substrate in air at a temperature of at least about 1100 degrees C. (Matin et al. Column 3 lines 14-20)

The motivation for backing the coated lamp in air is that it allows for transforming the coating into a substantially visible light scattering, infrared reflecting filter. (Martin et al. Column 8 lines 35-40)

Regarding claim 3, Parham et al. teach baking after forming the interference filter film at a temperature range of about 550-675 degrees C. (Parham et al. Column 6 lines 13-17) Martin, Jr et al. also teach baking at at least about 1100 degrees C. (Martin, Jr. et al. Column 3 lines 19-20)

The motivation baking the film after formation is that it allows preventing peeling of the film. (Parham et al. Column 6 lines 52-53)

Regarding claim 4, Parham et al. teach that after film formation heating the substrates up to a temperature of 550-675 degrees C for 1-5 hours followed by heating to 800 degrees C for 0.1-5 hours. (Parham et al. Column 6 lines 46-49)

The motivation for performing two steps of heating at different temperatures is that it prevents peeling of the film. (Parham et al. Column 6 lines 52-53)

Regarding claim 33, Martin et al. suggest baking at a temperature of at least about 1100 degrees C. (Martin et al. Column 3 lines 19-20)

The motivation for baking at a temperature of at least about 1100 degrees C is that it allows for transforming the coating into a substantially visible light scattering, infrared reflecting filter. (Martin et al. Column 8 lines 35-40)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. by baking the envelope in an oxygen containing atmosphere, baking at a temperature being greater than 400 degrees C, baking at a first temperature and then at a second temperature higher than the first temperature and baking at a temperature being greater than 1200 degrees C as taught by Parham et al. and Martin Jr. et al. because it allows for transforming the coating into a substantially visible light scattering, infrared reflecting filter and for preventing peeling of the film.

Claims 1, 5, 12, 13, 14, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. (U.S. Pat. 4,949,005) in view of Fridrich (U.S. Pat. 3,462,209).

Parham et al. is discussed above and all is as applies above. (See Parham et al. discussed above) Parham et al. suggest coating the lamp quartz substrate prior to formation of the lamp and after lamp fabrication. (Parham et al. Column 3 lines 30-34)

The differences between Parham et al. and the present claims is that baking the coated lamp in an oxygen free atmosphere is not discussed (Claims 5, 12, 13, 14), the steps of baking at a first temperature then at a second temperature greater than the first temperature is not discussed (Claim 15) and wherein the step of raising the baking temperature and baking the lamp for a period of time is repeated one or more times (Claim 16).

Regarding claim 5, teach that the heat treatment may be carried out in-situ in the deposition chamber after the film has been formed. (Column 6 lines 41-43) Given that the deposition chamber is evacuated and only reagents to form the film are present this is considered to be an oxygen free atmosphere. (Column 5 lines 29-42)

The motivation for carrying out baking in an oxygen free atmosphere is that it allows for preventing peeling of the film from the substrate. (Parham et al. Column 6 lines 52-53)

Regarding claims 12, 13 and 14, Parham et al. teach coating after the formation of the lamp. (See Parham et al. Column 3 lines 30-34) The lamp is formed by hermetic sealing. (Parham et al. Column 4 lines 35-51) The coating must be heated to avoid catastrophic stresses induced by the crystallization of the orthorhombic tantalum pentoxide crystals. (Parham et al. Column 3 lines 16-21) The heat treatment may be carried out in-situ in the deposition chamber after the film has been formed. (Parham et al. Column 6 lines 41-43) Given that the deposition chamber is evacuated and only reagents to form the film are present this is considered to be an oxygen free atmosphere. (Parham et al. Column 5 lines 29-42) Furthermore, Fridrich teach that the

baking operation should be carried out in an inert atmosphere, as in a conventional type nitrogen furnace for example, in order to prevent the oxidation and burning out of these exposed outer end portions of the lead-in conductors of a lamp. (Fridrich Column 7 lines 15-23)

The motivation for carrying out baking in an oxygen atmosphere is that it allows preventing oxidation of the exposed outer end portions of the lead-in conductors of the lamp. (Fridrich Column 7 lines 15-23)

Regarding claim 15, Parham et al. teach that after film formation heating the substrates up to a temperature of 550-675 degrees C for 1-5 hours followed by heating to 800 degrees C for 0.1-5 hours. (Parham et al. Column 6 lines 46-49)

Regarding claim 16, the raising of the baking temperature is repeated at least once. (Parham et al. Column 6 lines 46-49; Column 6 lines 48-55)

The motivation for heating in two steps and repeating is that it allows for preventing peeling of the film from the substrate. (Parham et al. Column 6 lines 52-53)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. by baking the coated lamp in an oxygen free atmosphere, by baking at a first temperature then at a second temperature greater than the first temperature and raising the baking temperature and baking the lamp for a period of time is repeated one or more times as taught by Parham et al. and Fridrich et al. because it allows for preventing oxidation of the lead in conductors and preventing peeling of the film.

Claims 1, 6 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. (U.S. Pat. 4,949,005) in view of Aedesse et al. (U.S. Pat. 3,466,489) and Gobel et al. (U.S. Pat. 5,276,763).

Parham et al. is discussed above and all is as applies above. (see Parham et al. discussed above)

The difference between Parham et al. and the present claims is that preventing coated portions of the lamp to temperatures above a certain temperature that are used for sealing.

Regarding claims 6 and 37-39, Audesse et al. teach sealing a quartz envelope by heating the open end of the envelope to the softening point of quartz, about 1500 to 2000 degrees C and mechanically squeezing to form a hermetically tight press seal. (Column 3 lines 21-24) Gobel et al. teach that to improve the thermal stability of a reflective coating on a lamp substrate a protective coating of zirconium oxide can be used. (See Abstract)

The motivation for utilizing a protective coating of zirconium oxide is that it allows for improving the thermal stability of the lamp. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. by utilizing a protective coating of zirconium oxide as taught by Gobel et al. because it allows improvement in thermal stability of the lamp since the process of sealing a quartz tube requires high heat as shown by Audesse et al.

Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. (U.S. Pat. 4,949,005) in view of Hollenbeck (U.S. Pat. 3,295,909).

Parham et al. is discussed above and all is as applies above. (See Parham et al. discussed above)

The difference between Parham et al. and the present claims is the aligning of the filament.

Hollenbeck '909 teach aligning a filament in a lamp by measuring the relative intensity of the generating electric field. (Column 3 lines 28-37; Column 4 lines 70-75) Since the measurement of the electric field is directly related to power this is believed to be equivalent measuring of power.

The motivation for aligning the filament is that it allows for aligning the filament with respect to a reference point. (Column 1 lines 51-59)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. by aligning the filament as taught by Hollenbeck '909 because it allows for aligning the filament with respect to a reference point.

Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. (U.S. Pat. 4,949,005) in view of DeCaro et al. (U.S. Pat. 3,932,780).

Parham et al. is discussed above and all is as applies above. (See Parham et al. discussed above)

The difference between Parham et al. and the present claims is that the masking to coat portion of the lamp is not discussed.

DeCaro et al. teach masking to coat selected portion of a lamp. (Column 2 lines 3-8)

The motivation for coating selected portions of the lamp through masking is that it allows for manufacturing reflector type lamps. (Column 1 line 48)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. by coating selected portions of lamp as taught by DeCaro et al. because it allows for manufacturing reflector type lamps.

Claims 30 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. (U.S. Pat. 4,949,005) in view of Zhoa et al. (U.S. Pat. 6,382,816).

Parham et al. is discussed above and all is as applies above. (See Parham et al. discussed above)

The difference between Parham et al. and the present claims is that sputtering and heating to oxidize is not discussed.

Zhoa et al. teach forming a protective film such as silicon oxide on a lamp. (See Abstract; Column 3 lines 46-47) The protective layer can be formed by sputtering. (Column 7 lines 15-16) The protective layer is heated such that oxygen from the air oxidizes the protective layer. (Column 7 lines 20-30)

The motivation for sputtering and heating to oxidize is that it allows for oxidizing the protective layer. (Column 7 lines 20-30)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. by sputtering and then

heating to oxidize as taught by Zhoa et al. because it allows for oxidizing the protective layer.

Claims 1, 10 and 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. (U.S. Pat. 4,949,005) in view of Hollenbeck (U.S. Pat. 3,777,171) and Terneu et al. (U.S. Pat. 5,221,352).

Parham et al. is discussed above and all is as applies above. (See Parham et al. discussed above)

The differences between Parham et al. and the present claims is that coating of the lamp before the step of coating the burner envelopes is not discussed.

Hollenbeck '171 teach glass tubing drawn from a furnace. The elongated tube drawn from the glass furnace is cut into specific lengths. (Column 3 lines 18-28) Terneu et al. suggest that it is better to coat the glass newly formed than after being pre-cut. (Column 2 lines 36-53)

The motivation for coating before cutting is that it allows processing of the glass in its most pristine condition. (Column 2 lines 44-45)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. by coating before cutting as taught by Hollenbeck and Terneu et al. because it allows for processing of the glass in its most pristine condition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rodney G. McDonald
Primary Examiner
Art Unit 1753

RM
April 13, 2005